



College of Engineering

**FRESHMAN ENGINEERING CLINIC II
ENGR 01102-N
SYLLABUS FOR SPRING 2007**

Course Coordinator: Dr. S. Farrell

Section	Professor	Meeting Times	Monday Meeting Room	Laboratory Location
01	Dr. R. Ramachandran	M: 8:25AM - 9:15 AM T: 8:00 AM - 10:40 AM	204	204
02	Dr. K. Jahan	M: 8:25AM - 9:15 AM T: 8:00 AM - 10:40 AM	304	309
03	Dr. B. Lefebvre	M: 8:25AM - 9:15 AM T: 8:00 AM - 10:40 AM	340	339
04	Dr. S. Farrell	M: 9:50AM - 10:40 AM W: 8:00 AM - 10:40 AM	102	339
05	Dr. D. Cleary	M: 9:50AM - 10:40 AM W: 8:00 AM - 10:40 AM	Aud.	309
06	Dr. A. Marchese	M: 9:50AM - 10:40 AM W: 8:00 AM - 10:40 AM	309	146

Competitive Assessment

In today's quickly changing and increasingly competitive market place, it is imperative that manufacturers keep abreast of the technological advances and design innovations incorporated into competing product lines. The term *competitive assessment* or reverse engineering has been coined by manufacturers to describe the process of ethically acquiring, inspecting, analyzing, instrumenting and testing the product lines of other manufacturers. You will be required to use the skills obtained in Freshman Engineering Clinic I. Developing engineers with hands-on practice is critical to the economic development of US industry.

Pre-requisite: Freshman Engineering Clinic I

Engineering Clinic II Objectives

- 1) Introduce students to the science and art of design by evaluating the work of practicing designers,
- 2) Introduce multidisciplinary teams of engineering students to unifying engineering science principles such as mass, momentum and energy balances; materials; thermodynamics, and electricity/magnetism using a consumer appliance or an engineering process as a test bed,
- 3) Enable students to determine how scientific principles, material properties, manufacturing techniques, cost, safety requirements, environmental considerations and intellectual property rights impact the design of a product,
- 4) Allow students to participate actively in a meaningful design effort by instrumenting and evaluating the performance of a consumer appliance or an engineering process,
- 5) Develop technical communication skills in graphical, written, and oral formats, and
- 6) Continue development of time management, and critical thinking skills.

Required Texts & Supplies (Available at the Rowan University Bookstore)

Introduction to Engineering Design and Problem Solving 2nd ed. (REQUIRED)
by Eide, Jenison, Mashaw & Northup

McGraw-Hill, ISBN 0-07-240221-0
Freshman Engineering Clinic I and II (REQUIRED)
 McGraw-Hill / Primis, ISBN 0-390-58690-0
 Large 3-ring binder for your portfolio
 Engineering Paper for Homework: Engineer's Computation Pad Ampad Corporation
 Laboratory notebook w/ numbered pages, duplicate page sets; e.g., Boorum #09-9088

Grading

This course is only offered for grade credit. The grade is determined by evaluating work performed in the following areas (the percentage contribution to the total grade for each component below will be specified by the individual instructor and presented to the class in written form):

Course Requirements
Reverse engineering project (experiments and lab reports)
Oral presentations – midterm oral and final poster presentations
Final Reverse Engineering Report
Final Exam
Professional Conduct
Portfolio
Quizzes & Homework
Other Assignments

Extra Credit - Student and Professional Engineering Societies:

An objective of this course is to introduce the profession of engineering to you. An excellent method to gain insight into a field of engineering is to attend engineering student club and engineering professional society meetings. For approved student and professional technical meetings you will receive 1 point per meeting added to your final grade, up to a total of 3 points during the semester. ***This can make the difference between a B+ and an A- on your final grade for the course!*** To obtain credit for attending a student meeting you must complete a section of the **Extra Credit Form** (on the last page of this syllabus) and obtain a signature from the faculty member in attendance. To expand your knowledge of all engineering fields, you are encouraged to attend meetings of engineering clubs outside of your chosen engineering discipline.

Portfolio

You will receive handouts each week in this course (such as this syllabus). It will be beneficial for you to maintain a portfolio of these handouts and your work. This portfolio will help you to learn and review the material presented in this course.

You are required to compile a portfolio of materials for this class that you will submit at the end of the semester for a final grade. This portfolio will consist of **all** handouts given in class, lecture notes, homework problems, quizzes, copies of ALL lab reports and projects, and laboratory notebooks. These materials are required to be contained in a large 3-ring binder. The material in this portfolio should be neatly organized into sections and separated with dividers. Your portfolio will be inspected as directed by your section instructor.

Homework and Quizzes

See instructor for details

Professional Conduct

You will be graded on your professionalism in this course. Many people including your fellow employees, community and family rely on your professional decisions and actions. Your work should place the highest value on safety. In addition, engineers are expected to consider the ethical and environmental consequences of their actions. In seeking internships and fulltime employment, employers will ask professors their opinion of not only your excellence in engineering, but also your ability to make

engineering decisions that are safe, ethical and environmentally responsible. The practice of professionalism will be divided into the three areas of *safety, attendance, and ethics*. See **Freshman Clinic Handbook** from the fall semester for further details.

Examples of Good and Poor Professional Conduct

Good Conduct

1. Arrive on time
2. Pay attention
3. Good attendance
4. Prepared (read the text, review notes from previous class, read handouts before coming to lab)
5. Follow good laboratory safety practice (safety glasses, long pants, closed shoes, follow precautions for specific experiment)
6. Respect the office hours
7. Prepared for office hours
8. Good attitude toward learning and problem solving
9. Make constructive comments

Poor conduct

1. Arrive late for class frequently / making a conspicuous and disruptive late entrance.
2. Not paying attention in class (reading newspaper etc.)
3. Disruptive behavior in class (side conversations, etc.)
4. Ignore good safety practice (no safety goggles, shorts, sandals etc.)
5. Absent from class frequently
6. Unprepared for class
7. Disregard office hours
8. Not prepared when coming to ask questions during office hours

Computer Usage

The engineering computer skills to be applied in the course include: (i) word processing; (ii) spreadsheets; (iii) computer-aided design; (iv) symbolic programming; and (v) the use of application software. The student will become familiar with a networked PC computing environment that provides e-mail services, Internet access, and access to other campus information technology resources. For information on connecting a personal computer in your residence hall to the Rowan Network please go to web site <http://www.rowan.edu/res/>. For technical support questions in Rowan Hall, please visit <http://www.rowan.edu/it/engineering/>, or send email to support@galaxy.rowan.edu.

ROWAN UNIVERSITY

**COLLEGE OF ENGINEERING
FRESHMAN ENGINEERING CLINIC
EXTRA CREDIT FORM**

NAME _____ SECTION _____

You can accumulate up to 3 points added to your final grade by attending technical meetings of the engineering professional societies. Use this form to document your attendance at these meeting and turn it in to your Monday session instructor at the end of the semester (or as soon as you have attended 3 meetings).

Name of Professional Society: (or other organization)
Date of Attendance:
Description of Technical Topic:
Signature of Faculty Representative

Name of Professional Society: (or other organization)
Date of Attendance:
Description of Technical Topic:
Signature of Faculty Representative

Name of Professional Society: (or other organization)
Date of Attendance:
Description of Technical Topic:
Signature of Faculty Representative